

PATENT COOPERATION TREATY
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FP18427/GR	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/AU2003/001210	International Filing Date (day/month/year) 16 September 2003	Priority Date (day/month/year) 16 September 2002
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ B03D 1/02		
Applicant WMC RESOURCES LTD et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 16 April 2004	Date of completion of the report 10 December 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer THARU FERNANDO Telephone No. (02) 6283 2486

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 2-3, 7-12, 14, 17-20, 23-29, 30-36	YES
	Claims 1, 4-6, 13, 15-16, 21-22	NO
Inventive step (IS)	Claims 2-3, 9-12, 14, 17-20, 23-28, 30-36	YES
	Claims 1, 4-8, 13, 15-16, 21-22, 29	NO
Industrial applicability (IA)	Claims 1-36	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

The closest prior art documents to the current invention are:

-US 6170669 B

-US 5411148 A

Novelty

US 6170669

The features of claims 1, 4-6, 13, 15-16, 21-22 are anticipated by this citation, and as such these claims are not novel. *Column 1 lines 50-62 and column 4 lines 52 to 64* disclose a continuous flotation process for iron-containing sulphides in ores and concentrates of ores containing all the steps of claim 1. Claims 4 to 6 are disclosed in *column 1 lines 29-43*. Claim 13 is anticipated by *column 3 lines 55-61* which states that it is desirable to continuously agitate the pulp when in contact with the reducing agent. Claims 15 and 16 are disclosed in *column 3 lines 44-54*, and the features of claims 21-22 are taught in *column 4 lines 23-27*.

US 5411148

This document is directed to a method for the selective flotation of sulphide minerals containing non-ferrous meals from iron sulphides and anticipates the features of claims 1, 4-6, 15-16, 21-22. The process steps of claim 1 are disclosed as follows: (a) adjusting the pH (*claim 7 of the citation*), (b) adding a reducing agent (*claims 11 and 14*), (c) adding the collector (*claim 8*), (d) aerating the pulp, and (e) and bubbling gas through the pulp to produce a froth (*claim 1 lines 65-68*).

The features of claim 4 are taught in *claim 2* of the citation, while *claim 7* also teaches the features of claims 5 and 6. Further *claims 11 and 14* anticipate the features of claims 15 and 16 and *claim 8* discloses the features of claims 21-22.

Therefore in view of the citation, claims 1, 4-6, 15-16, 21-22 are not novel.

Claims 2-3, 7-12, 14, 17-20, 23-29, 30-36 are not anticipated by either of the above documents and therefore describe novel features.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box V - Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2. CITATIONS AND EXPLANATIONS (RULE 70.7)

Inventive Step

US 6170669

Claims 1, 4-8, 13, 15-16, 21-22, 29 lack an inventive step. See above discussion regarding claims 1, 4-6, 13, 15-16, and 21-22.

Further, the features of claims 7-8, and 29 are not inventive, as they form a part of the common general knowledge in the art of metal recovery using flotation (see for example p79 of *Flotation* A.M Gaudin, McGraw-Hill Book Company, Inc., New York, 1932). Adding acid, as claimed in claim 7, to increase the pH is known, and a person skilled in this art would be able to, without much difficulty, realise that in order to adjust the pH early in the process, the best place to add the acid would be in the first tank. The features of claim 29 where the froth is separated from the pulp and the valuable metal recovered, is known in the art, since the aim of flotation is to recover the valuable metal(s).

Industrial Applicability

Claims 1-36 relate to an industrially applicable invention.